

WHAT IS CLAIMED IS:

1. A computer-implemented method for managing storage of data having an associated measurement unit in a database table, comprising:
 - storing the data in a column of the database table, the column having a name;
 - generating units metadata describing the measurement unit; and
 - associating the units metadata with the column of the database table.
2. The method of claim 1, wherein generating the units metadata is done in response to receiving a generation command indicating the column of the database table and the measurement unit.
3. The method of claim 1, further comprising:
 - determining ontological properties describing cognitive qualities of the column of the database table; and
 - generating ontological metadata describing the ontological properties.
4. The method of claim 1, further comprising:
 - adding a rounding factor to the units metadata indicating decimal places to which values in the column are to be rounded.
5. The method of claim 1, wherein the units metadata is stored separately from the database table.
6. A computer-implemented method for managing execution of a query against data in one or more database tables, comprising:
 - determining whether the query requires relating a first column and a second column having associated units metadata, the first and second columns being included in the one or more database tables;
 - determining, from the associated units metadata, a first measurement unit for the first column and a second measurement unit for the second column; and

converting data contained in the first column having the first measurement unit into equivalent data having the second measurement unit.

7. The method of claim 6, further comprising:
before converting, determining whether the first measurement unit can be converted into the second measurement unit.
8. The method of claim 6, further comprising:
determining a conversion algorithm for converting the data; and
using the conversion algorithm for converting the data.
9. The method of claim 6, wherein the query is a SQL query having a JOIN statement specifying the first and second columns.
10. The method of claim 6, wherein the query is a SQL query having a WHERE clause specifying the first and second columns.
11. The method of claim 6, wherein the query requests data in a third measurement unit, the method further comprising:
receiving a query result for the query, the query result including data having one of the first and second measurement units; and
converting the data returned with the query result into data having the third measurement unit.
12. The method of claim 6, further comprising:
before converting, determining whether conversion of data contained in the first column having the first measurement unit into data having the second measurement unit is enabled; and
converting the data only if the conversion is enabled.
13. A computer-implemented method for managing execution of a query against data in a database table, comprising:

determining whether the query includes a result field associated with a first measurement unit;

determining whether a column in the database table corresponding to the result field has units metadata indicating a second measurement unit; and

if so, converting data obtained as query result having the second measurement unit into equivalent data having the first measurement unit of the result field.

14. The method of claim 13, further comprising:

determining a conversion algorithm for converting the data; and

using the conversion algorithm for converting the data obtained as query result into the data having the first measurement unit.

15. A computer-implemented method for managing execution of a query against data in a database table, comprising:

determining whether the query includes a result field associated with a first measurement unit;

determining whether a column in the database table corresponding to the result field has an associated index using a second measurement unit;

if so, modifying the result field having the first measurement unit into a result field having the second measurement unit of the associated index; and

executing the query using the modified associated index.

16. The method of claim 15, further comprising:

receiving a query result for the query, the query result including data having the second measurement unit; and

converting the data returned with the query result into equivalent data having the first measurement unit.

17. The method of claim 16, further comprising:

determining a conversion algorithm for converting the data; and

using the conversion algorithm for converting the data returned with the query result into the data having the first measurement unit.

18. The method of claim 15, further comprising:
 - if it is determined that the column has two or more indexes:
 - selecting, as the associated index, an index from the two or more indexes requiring less memory space.
19. The method of claim 15, further comprising:
 - if it is determined that the column has two or more indexes:
 - selecting, as the associated index, an index from the two or more indexes which is most often used.
20. A computer readable medium containing a program which, when executed, performs a process for managing storage of data having an associated measurement unit in a database table, the process comprising:
 - storing the data in a column of the database table;
 - generating units metadata describing the measurement unit, the column having a name; and
 - associating the units metadata with the column of the database table.
21. The computer readable medium of claim 20, wherein generating the units metadata is done in response to receiving a generation command indicating the column of the database table and the measurement unit.
22. The computer readable medium of claim 20, wherein the process further comprises:
 - receiving user input specifying ontological properties describing cognitive qualities of the column of the database table; and
 - generating ontological metadata describing the ontological properties.

23. The computer readable medium of claim 20, wherein the process further comprises:

adding a rounding factor to the units metadata indicating decimal places to which values in the column are to be rounded.

24. The computer readable medium of claim 20, wherein the units metadata is stored separately from the database table.

25. A computer readable medium containing a program which, when executed, performs a process for managing execution of a query against data in one or more database tables, the process comprising:

determining whether the query requires relating a first column and a second column having associated units metadata, the first and second columns being included in the one or more database tables;

determining, from the associated units metadata, a first measurement unit for the first column and a second measurement unit for the second column; and

converting data contained in the first column having the first measurement unit into equivalent data having the second measurement unit.

26. The computer readable medium of claim 25, wherein the process further comprises:

before converting, determining whether the first measurement unit can be converted into the second measurement unit.

27. The computer readable medium of claim 25, wherein the process further comprises:

determining a conversion algorithm for converting the data; and

using the conversion algorithm for converting the data.

28. The computer readable medium of claim 25, wherein the query is a SQL query having a JOIN statement specifying the first and second columns.

29. The computer readable medium of claim 25, wherein the query is a SQL query having a WHERE clause specifying the first and second columns.

30. The computer readable medium of claim 25, wherein the query requests data in a third measurement unit, the method further comprising:

receiving a query result for the query, the query result including data having one of the first and second measurement units; and

converting the data returned with the query result into data having the third measurement unit.

31. The computer readable medium of claim 25, wherein the process further comprises:

before converting, determining whether conversion of data contained in the first column having the first measurement unit into data having the second measurement unit is enabled; and

converting the data only if the conversion is enabled.

32. A computer readable medium containing a program which, when executed, performs a process for managing execution of a query against data in a database table, the process comprising:

determining whether the query includes a result field associated with a first measurement unit;

determining whether a column in the database table corresponding to the result field has units metadata indicating a second measurement unit; and

if so, converting data obtained as query result having the second measurement unit into equivalent data having the first measurement unit of the result field.

33. The computer readable medium of claim 32, further comprising:

determining a conversion algorithm for converting the data; and

using the conversion algorithm for converting the data obtained as query result into the data having the first measurement unit.

34. A computer readable medium containing a program which, when executed, performs a process for managing execution of a query against data in a database table, the process comprising:

- determining whether the query includes a result field associated with a first measurement unit;

- determining whether a column in the database table corresponding to the result field has an associated index using a second measurement unit;

- if so, modifying the result field having the first measurement unit into a result field having the second measurement unit of the associated index; and

- executing the query using the modified associated index.

35. The computer readable medium of claim 34, wherein the process further comprises:

- receiving a query result for the query, the query result including data having the second measurement unit; and

- converting the data returned with the query result into equivalent data having the first measurement unit.

36. The computer readable medium of claim 35, wherein the process further comprises:

- determining a conversion algorithm for converting the data; and

- using the conversion algorithm for converting the data returned with the query result into the data having the first measurement unit.

37. The computer readable medium of claim 34, wherein the process further comprises:

- if it is determined that the column has two or more indexes:

- selecting, as the associated index, an index from the two or more indexes requiring less memory space.

38. The computer readable medium of claim 34, wherein the process further comprises:

if it is determined that the column has two or more indexes:

selecting, as the associated index, an index from the two or more indexes which is most often used.

39. A data processing system, comprising:

at least one database having a database table; and

a units metadata manager for managing storage of data having an associated measurement unit in the database table, the units metadata manager being configured for:

storing the data in a column of the database table;

generating units metadata describing the measurement unit; and

associating the units metadata with the column of the database table.

40. A data processing system, comprising:

at least one database having one or more database tables; and

a units metadata manager for managing execution of a query against data in the one or more database tables, the units metadata manager being configured for:

determining whether the query requires relating a first column and a second column having associated units metadata, the first and second columns being included in the one or more database tables;

determining, from the associated units metadata, a first measurement unit for the first column and a second measurement unit for the second column; and

converting data contained in the first column having the first measurement unit into equivalent data having the second measurement unit.

41. A data processing system, comprising:

at least one database having a database table; and

a units metadata manager for managing execution of a query against data in the database table, the units metadata manager being configured for:

determining whether the query includes a result field associated with a first measurement unit;

determining whether a column in the database table corresponding to the result field has units metadata indicating a second measurement unit; and

if so, converting data obtained as query result having the second measurement unit into equivalent data having the first measurement unit of the result field.

42. A data processing system, comprising:

at least one database having a database table; and

a units metadata manager for managing execution of a query against data in the database table, the units metadata manager being configured for:

determining whether the query includes a result field associated with a first measurement unit;

determining whether a column in the database table corresponding to the result field has an associated index using a second measurement unit;

if so, modifying the result field having the first measurement unit into a result field having the second measurement unit of the associated index; and
executing the query using the modified associated index.